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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,011	09/30/2003	Lynn Dickey	040989/267934	5538
826 7590 08/19/2009 ALSTON & BIRD LLP BANK OF AMERICA PLAZA 101 SOUTH TRYON STREET, SUITE 4000 CHARLOTTE, NC 28280-4000			EXAMINER ZHENG, LI	
			ART UNIT 1638	PAPER NUMBER
			MAIL DATE 08/19/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/675,011

Applicant(s)

DICKEY ET AL.

Examiner

LI ZHENG

Art Unit

1638

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 82-84 and 87-94 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 82-84 and 87-94 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. Claims 82-84 and 87-94 are pending and examined on the merits.
2. Applicants' amendment to claim 82 filed on 4/24/2009 is acknowledged.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. The rejections and objections not set forth in this action are withdrawn.

Claim Rejections - 35 USC § 103

5. Claims 82-84 and 87-92 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Stomp et al. (1999, WO 99/07210) further in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), Buzby et al. (1990, The Plant Cell 2:805-814) and Stiekema et al. (1983, Nucleic Acid Research 11:8051-8061), for the reasons of record stated in the Office action mailed December 24, 2008. Applicants traverse in the paper filed April 24, 2009. Applicants' arguments have been fully considered but were not found persuasive.

Applicants further argue that a person skilled in the art would not look to Buzby et al. to enhance protein expression in duckweed because Buzby et al. only focused on the binding activity of LRF-1 to highly related 5' UTL of RbcS that do not include SEQ ID NO: 16; that LRF-1 does not bind the 5' UTLs equally and that Buzby et al. do not contemplate or disclose that SEQ ID NO: 16 plays any role in LRF-1 binding (response, page 6, 4th paragraph).

The Office contends that Buzby et al. is provided as a reference ONLY to teach a 5' UTL comprising SEQ ID NO: 16. The LRF-1 binding activity of Buzby et al. is unrelated to the instant rejection because the motivation to use 5' UTL of Buzby et al. is provided by Wong et al. as well as knowledge of a person skilled in the art that 5' UTL of RbcS generally functions to enhance protein expression and that a 5' UTL of RbcS from a duckweed *L. gibba* is likely to work as expression enhancer in a duckweed plant such as *L. gibba*.

Applicants argue that a person skilled in the art must guess as to which sequences within rbcS 5' UTLs work in connection with Box X to drive light-dependent expression (response, page 8, 1st paragraph).

The Office contends that a person skilled in the art does not have to determine which sequences within rbcS 5' UTLs work in connection with Box X to drive light-dependent expression because a full length of 5' UTL can be used.

Applicants argue that a person skilled in the art would select not only a rbcS 5' UTL, but also its chloroplast transit polypeptide coding sequence to enhance polypeptide expression in view of Wong et al. and that chloroplast transit polypeptide

sequences would frustrate the purpose of claimed invention (response, page 8, last paragraph).

The Office contends that the invention as claimed does not exclude additional sequence to be present in addition to SEQ ID NO: 16 given the open language "comprising" in claim 82. Further Wong et al. teach that *ats1A* untranslated leader alone was responsible for the increased expression of GUS activity (page 89, 2nd paragraph of right column). Therefore the requirement for transit polypeptide is only specific for *cryIA* gene. Still the instant claims do not contain limitations such that the heterologous polypeptide has to be secreted into the medium.

Applicants further argue that a comparison of 5' UTL of Wong et al. with SEQ ID NO: 16 reveals that two sequences are structurally distinct (response, page 9, paragraphs 1-2).

The Office contends that the difference in primary sequence does not mean the sequence are structurally distinct as the nucleotide sequence required for enhancer expression may only rely on a few nucleotides. Further, the 5' UTL of *RbcS* genes from various plant species may have differences at nucleotide sequence level, however, the function, i.e. enhancing gene expression, is highly conserved. The differences in nucleotide sequence may contribute to the efficacy as an expression enhancer, however, on the other hand it further motivates a person with ordinary skill in the art to use 5'UTL of *RbcS* gene 5B from a duckweed for enhancing heterologous expression of genes in a duckweed plant.

6. Claims 82-84 and 87-94 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Stomp et al. (1999, WO 99/07210) further in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), Buzby et al. (1990, The Plant Cell 2:805-814), Yu et al. (1995, U.S. Patent No. 5460952), Park et al. (1997, The Journal of Biological Chemistry 272:6876-6881) and Stiekema et al. (1983, Nucleic Acid Research 11:8051-8061), for the reasons of record stated in the Office action mailed December 24, 2008. Applicants traverse in the paper filed April 24, 2009. Applicants' arguments have been fully considered but were not found persuasive.

Applicants present similar argument as presented for rejections under 35 U.S.C. 103(a) (response, page 4, 2nd paragraph from the bottom of the page). For the same reason as discussed above, the rejection is maintained.

Double Patenting

7. Claims 82-84 and 87 remain rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-17 of U.S. Patent No. 6,815,184 (hereafter '184) in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), and Buzby et al. (1990, The Plant Cell 2:805-814), for the reasons of record stated in the Office action mailed February 7, 2008. Applicants traverse in the paper filed September 25, 2008. Applicants' arguments have been fully considered but were not found persuasive.

Applicants present similar argument as presented for rejections under 35 U.S.C. 103(a) (response, page 11, 3rd paragraph). For the same reason as discussed above, the rejection is maintained.

8. Claims 82-84 and 87-94 remain provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 3, 8-10, 23, 26-29 of copending Application No. 10/794,615 (hereafter '615) , for the reasons of record stated in the Office action mailed February 7, 2008. Applicants traverse in the paper filed September 25, 2008. Applicants' arguments have been fully considered but were not found persuasive.

Applicants do not present any argument and therefore the rejection is maintained. However, Applicants' intention to address the filing of a terminal disclaimer when the application is otherwise in condition for allowance is acknowledged (response, page 11, 2nd paragraph from the bottom of the page).

9. Claims 82-84 and 87 remain rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 11/778,480, which is a continuation application of the abandoned application of '846, in view of Wong et al. (1992, Plant Molecular Biology 20:81-93), and Buzby et al. (1990, The Plant Cell 2:805-814) , for the reasons of record stated in the Office action mailed February 7, 2008. Applicants traverse in the paper

filed September 25, 2008. Applicants' arguments have been fully considered but were not found persuasive.

Applicants do not present any argument and therefore the rejection is maintained. However, Applicants' intention to address the filing of a terminal disclaimer when the application is otherwise in condition for allowance is acknowledged (response, the paragraph bridging pages 11-12).

Summary

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li Zheng whose telephone number is 571-272-8031. The examiner can normally be reached on Monday through Friday 9:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on 571-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David H Kruse/
Primary Examiner, Art Unit 1638